

Title (en)

TUBE ASSEMBLY FOR TUBULAR HEAT EXCHANGER, AND TUBULAR HEAT EXCHANGER COMPRISING SAME

Title (de)

ROHRANORDNUNG FÜR ROHRFÖRMIGEN WÄRMETAUSCHER UND ROHRFÖRMIGER WÄRMETAUSCHER DAMIT

Title (fr)

ENSEMBLE TUBE DESTINÉ À UN ÉCHANGEUR DE CHALEUR TUBULAIRE, ET ÉCHANGEUR DE CHALEUR TUBULAIRE COMPRENANT L'EDIT ENSEMBLE

Publication

EP 3511665 A4 20200311 (EN)

Application

EP 17849110 A 20170907

Priority

- KR 20160116363 A 20160909
- KR 20160116360 A 20160909
- KR 20160137834 A 20161021
- KR 2017009835 W 20170907

Abstract (en)

[origin: EP3511665A1] The purpose of the present invention is to provide a tube assembly for a tubular heat exchanger and a tubular heat exchanger comprising the same, the tube assembly for a tubular heat exchanger being capable of enhancing efficiency in heat exchange between a heat medium and a combustion gas and also preventing high-temperature oxidation and the burn-out of a turbulator caused by the combustion heat of the combustion gas and preventing the deformation or damage of a tube which may occur in an environment with a high water pressure, thereby improving the durability thereof. The tube assembly for a tubular heat exchanger of the present invention, for achieving the purpose, comprises: a tube which is formed in a flat shape and enables a combustion gas generated in a combustion chamber to flow along the inside thereof and exchange heat with a heat medium which flows outside thereof; and a turbulator which is coupled to the inside of the tube and induces the generation of turbulence in the flow of the combustion gas.

IPC 8 full level

F28D 7/16 (2006.01); **B01F 5/06** (2006.01); **F24H 1/28** (2006.01); **F24H 9/00** (2006.01); **F28D 21/00** (2006.01); **F28F 1/02** (2006.01);
F28F 1/04 (2006.01); **F28F 1/40** (2006.01); **F28F 9/24** (2006.01); **F28F 13/06** (2006.01); **F28F 13/12** (2006.01)

CPC (source: EP RU US)

F24H 1/287 (2013.01 - EP); **F24H 9/00** (2013.01 - US); **F24H 9/0026** (2013.01 - EP); **F28D 7/16** (2013.01 - EP US); **F28D 7/1684** (2013.01 - RU);
F28D 21/00 (2013.01 - EP US); **F28D 21/0015** (2013.01 - US); **F28F 1/02** (2013.01 - EP US); **F28F 1/04** (2013.01 - EP US);
F28F 1/40 (2013.01 - EP US); **F28F 9/24** (2013.01 - EP US); **F28F 13/06** (2013.01 - EP); **F28F 13/12** (2013.01 - EP RU US)

Citation (search report)

- [X] DE 9309771 U1 19930826 - VIESSMANN WERKE KG [DE]
- [XI] FR 2512940 A1 19830318 - SUEDDEUTSCHE KUEHLER BEHR [DE]
- [X] FR 2123195 A1 19720908 - CHAUSSON USINES SA
- [X] EP 1630513 A2 20060301 - BEHR GMBH & CO KG [DE]
- [X] DE 102006033570 A1 20080124 - MODINE MFG CO [US]
- [X] US 2016018167 A1 20160121 - DZIUBINSCHI OREST ALEXANDRU [US], et al
- [E] US 2017343304 A1 20171130 - NEGI HIDENAO [JP], et al
- See references of WO 2018048226A1

Cited by

US2019101307A1; US10935278B2

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

EP 3511665 A1 20190717; EP 3511665 A4 20200311; EP 3511665 B1 20231213; CN 109564068 A 20190402; CN 109564068 B 20210806;
RU 2019110262 A 20201009; RU 2019110262 A3 20201009; RU 2738905 C2 20201218; US 11306943 B2 20220419;
US 2019249902 A1 20190815; WO 2018048226 A1 20180315

DOCDB simple family (application)

EP 17849110 A 20170907; CN 201780044918 A 20170907; KR 2017009835 W 20170907; RU 2019110262 A 20170907;
US 201716329255 A 20170907